

## CUSTOM GOLF BALL PACKAGE

### FIELD OF THE INVENTION

5 The present invention relates to golf balls and more particularly, market-savvy packaging for golf balls in which a re-creation of a business card is an integral part of the packaging.

### BACKGROUND OF THE INVENTION

10 The golf ball industry is a very competitive one and manufacturers are constantly trying to gain the upper hand on competitors in any one of a number of ways. In addition to improving products, one of the main ways in which manufacturers can increase sales and market share is through marketing.

15 Marketing is arguably one of the most crucial factors in determining whether a product succeeds in the marketplace. Additionally, offering creative marketing options for customers does not only benefit the manufacturer, but also benefits the customer. One common manner in which manufacturers lure customers is by offering an array of custom products and/or custom indicia/logo-marked products. Typical examples include golf balls having a company or country club name printed on the side, and shirts or outerwear with company logos.

20 Individuals, however, generally rely on business cards to give to customers or potential customers to identify themselves and create a reminder for the customer when any future business may be needed. Business cards are rarely so spectacular that they can make one person stand out above another. There remains a need, therefore, for improved and novel custom marketing options that allow an individual to identify themselves or their business in a dynamic and creative manner, yet that is affordable and useful.

### 25 SUMMARY OF THE INVENTION

The present invention is directed to a package and plurality of golf balls customized for an individual including an enclosure formed of a material suitable for printing thereon; and a plurality of golf balls disposed therein; the enclosure including a top portion, a bottom portion, and a plurality of side portions joining the top and bottom portions, wherein at least one of the  
30 top, bottom, or side portions include an image of the individual's business card.

The top and bottom portions are typically rectangular in shape and are oriented substantially parallel to each other. The plurality of side portions preferably includes 4 side portions – additionally, the top and bottom portions are interconnected by the 4 side portions.

The sides can include indicia identifying the golf balls contained therein. In one embodiment, the image is scanned, downloaded from a website, FTP'd (via file transfer protocol), digitally-generated, optically-generated, or mechanically generated. In another embodiment, the image comprises a CMYK color system, a CMYKOG color system, a RGB color system, spot colors, PMS colors, or metallic colors.

Preferably, the image and, more particularly, a digital image, is transferred to the first material prior to the first material being formed into the enclosure. The image can be transferred to the first material by pad-printing, digital printing, inkjet printing, dye-sublimation printing, silk-screening, or transfer printing. In a preferred embodiment, the plurality of golf balls comprises 6 golf balls.

In another embodiment, the digital image comprises a .tif file, a .bmp file, a .jpg file, an .eps file, or a .pdf file. In a particularly preferred embodiment, the image is edited or color matched prior to transferring to the first material.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawing which forms a part of the specification and is to be read in conjunction therewith:

FIG. 1 is a perspective view of the package of the present invention prior to receiving a business card image and being formed into a three-dimensional enclosure; and

FIG. 2 is a perspective view of one embodiment of the package and golf balls of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

The present invention is generally directed to a package 10 containing a plurality of golf balls, the package customized for an individual, such that the package incorporates the individual's business card or a re-creation thereof. The package can be of any shape or size, but preferably is configured to hold golf balls. Any number of golf balls may be held by the package but preferably it holds 6 golf balls.

Referring to FIGS. 1 and 2, in general, the package 10 is an enclosure formed of a material suitable for printing thereon. The enclosure, when formed, should include a top portion 12, a bottom portion 14, and a plurality of side portions 16a-d joining the top 12 and bottom 14 portions. Preferably, the top 12 and bottom 14 portions are rectangular in shape and are oriented substantially parallel to each other. More preferably, the plurality of side portions 16a-d comprises 4 side portions and the top and bottom portions are interconnected by the 4 side portions. Preferably, at least 2 side portions 16a, 16c have a different length than the remaining side portions 16b, 16d.

In a preferred embodiment, at least one of the top 12, bottom 14, or side 16a-d portions include an image of an individual's business card 18. Additionally, at least one of the top 12, bottom 14, or side 16a-d portions include indicia identifying the golf balls contained within the enclosure. In one embodiment, at least one of the side portions 16a-d includes the indicia identifying the golf balls contained therein.

Referring to FIG. 1, in a preferred embodiment, the package is first formed in two dimensions. The image of the business card is transferred to a blank top 12, bottom 14, or side portion 16a-d and printed onto the desired top 12, bottom 14, or side portion 16a-d. Subsequent to printing, the two-dimensional structure (FIG. 1) is formed into the three-dimensional package (FIG. 2) suitable for filling with the plurality of golf balls. The two-dimensional package may be formed and held in a three-dimensional package by any means including, but not limited to, folding and gluing (or adhesives), male-female tabs/slots 20, spot 'welding' with adhesives, or simply by folding sufficiently structurally-sound paper stock into a desired shape.

The image may be transferred to the blank top 12, bottom 14, or side portion 16a-d formed from the first material in any manner including, but not limited to, traditional offset printing, pad-printing, digital printing, inkjet printing (*i.e.*, piezo inkjet), dye-sublimation printing, silk-screening, electrostatic printing, screen-press printing, or transfer printing. More preferably, the image is transferred to the first material by traditional offset printing or digital printing. Most preferably, the image is transferred to the first material by digital printing.

One exemplary example of digital printing is that offered by Odyssey Digital Printing of Tulsa, OK. Digital printing eliminates a number of steps required for traditional offset printing (*i.e.*, film, proofs, match prints, and press plates), saving cost and time and increasing flexibility. Because digital printing affords the user a 'digital' front end, press set-up time, from image to

printing is typically only minutes. The physical act of printing is typically accomplished by an offset printing press, such as a Heidelberg Quickmaster DI®, using traditional inks and common paper stock. Another suitable printer is the Xeikon 50D® full color digital press. The Xeikon 50D is a roll-fed perfecting press that prints up to an 18.7" wide and 35' long live image area.

5 The toner based printing technology maximizes the quality characteristics of the electro-photographic process, yielding 600x600 DPI with variable gray levels per dot, per color, 170 lines per inch halftone screen with a classic clear centered rosette.

Any packaging containing a business card (and any logo/indicia thereon) can be prepared according to the invention. It is preferred, however, that the packaging be created by adding a  
10 business card to computer memory so that the business card (or any indicia on the card) can be manipulated on the computer using one of many commercially available computer or software programs, such as Adobe Photoshop®.

In particular, a business card provided by a client can be transferred as a digital image into computer memory using any of the numerous means of transferring a document into  
15 computer memory, such as by digitally scanning a printed image. Alternatively, the business card may be created in computer memory by using a commercially available design program, such as Adobe Illustrator® or Macromedia Freehand®, to create the business card directly on the system, or by modifying an existing or downloaded image from a secondary source, such as the worldwide web or FTP (via file transfer protocol), a CD-ROM, or a digital camera. Other means  
20 for transferring the business card to the packaging surface are envisioned and may be substituted, such as by ink-jet printing.

Once the business card is in computer memory, the card can be modified to make lines continuous or discontinuous and regions more, or less, distinct. Any logos or indicia may also be evaluated for their accuracy compared to the original business card. For example, if the color of  
25 the digital copy is subtly different from the original, tonal changes can be made to better match the digital copy to the original artwork. The various regions making up the business card (and any indicia thereon) are typically associated with different colors and/or shading effects that can be separated into the corresponding color channels.

In one embodiment, the logo or pattern to be printed on the golf ball is scanned into a  
30 computer as a graphic image in one of many color image formats, such as "RGB" (a 3-color system including red ("R"), green ("G"), and blue ("B")) or "CMYK" (a 4-color system

including cyan (“C”), magenta (“M”), yellow (“Y”), and black (“B”). The RGB color space is limited to colors that can be defined as 0 to 100 percent red, 0 to 100 percent green, and 0 to 100 percent blue, whereas the CMYK color space is limited to colors which can be defined as 0 to 100 percent cyan, 0 to 100 percent magenta, 0 to 100 percent yellow, and 0 to 100 percent black.

5 For true high-fidelity (“HiFi”) printing, color systems having more than four colors are required.

While 4-color systems have been the standard in the pad-printing industry for many years, HiFi color systems, such as a 6-color or 8-color system, are relatively new to the printing industry. HiFi color is a process that achieves a superior visual appearance of color and imagery that is not possible with conventional 4-color process printing. HiFi color offers an expandable  
10 color gamut, as compared to that which is obtained through traditional printing methods. A 6-color system typically adds the colors orange (“O”) and green (“G”) to the conventional CMYK color space (“CMYKOG”), allowing for an even greater color range to be obtained. One example is the Hexachrome® color system, commercially-available from Pantone, Inc. of Carlstadt, N.J., which is able to reproduce more brilliant continuous-tone images and is capable  
15 of simulating over 90 percent of solid Pantone Matching System (“PMS”) colors, almost twice that available using conventional 4-color systems. Color systems of eight or more colors also exist and would be well-suited for printing the packaging according to the presently invention.

After scanning the original business card or transferring a digital copy of the business card into a computer, the card (and any image thereon) is then typically imported into image  
20 manipulation software, such as Adobe Photoshop®, that enables the image to be separated into the distinct colors (“color channels”) of the selected color system (*e.g.*, CMYK), allowing designers to see, prior to printing, the design and color channel output. Preferably, at least a 4-color system is used with the present invention. More preferably, a 6-color system is used.

In a preferred embodiment of the current invention, when the business card is printed  
25 onto the packaging surface, the business card is scanned into the memory of a computer. The business card is preferably scanned or created in “CMYK” at a resolution sufficient to produce a quality scanned representative image. Preferably, the resolution of the scan is at least about 600 dots per inch (“dpi”). After scanning the original artwork, tonal adjustments (“cleaning up”) are generally made to the business card image so as to best replicate the original and the meet the  
30 desires of the client. After the business card is cleaned up (such as by color matching), it is preferably saved in a graphical format, preferably a tagged image file format (“TIFF”) or

encapsulated postscript format (“EPS”). Other suitable file formats include, but are not limited to, BMP files, JPG files, or PFD files.

It should be understood that the image of the business card in memory could be used directly for printing without any intermediate need to store the image on magnetic or other media, such as a hard drive. The TIFF or EPS files that result from the scan are smaller in size (*i.e.*, take up less memory), allowing faster manipulation and processing, as well as requiring less data storage capabilities. The combination of these factors result in efficiency and cost reduction. Furthermore, if desired, one of ordinary skill in the art can easily convert the CMYK image to a CMYKOG (or other color space) image.

After saving the digital image(s) of the business card in the desired format, if desired, the image can be further manipulated using graphical software, such as Adobe Illustrator®.

Illustrator® is a vector-based drawing program that allows the graphic artist to draw lines, as opposed to the little “blocks” often generated by bitmap software programs. One of the features of Illustrator® allows the size of the digital image to be altered so that it more closely matches the size desired by the customer. At this point in the process, the digital image can then be copied and spaced to fit required template and production dimensions (*i.e.*, into the dimensions of any of the top, bottom, or side portions of the package of the present invention). Additionally, a separate copy of the business card image can be made corresponding to each specific color channel of the color space to be employed. For example, if the 6-color space is used, six individual images of the logo (one for each discrete color in the 6-color space), are provided. These “separated” images can then be saved in the standard graphic formats listed above.

The next step, if desired, involves opening the digital image in Adobe Photoshop® or any other image manipulation software. Within Photoshop®, a single image can be selected, and separated and assigned to discrete color channels (*i.e.*, one image is separated into six channels, one being assigned to the cyan color channel, another to the magenta color channel, etc.). This step is repeated until every color channel has been assigned to a single color. For each image assigned to a particular color channel, the remaining color channels are filtered (removed) from, for example by using HexWrench® software by Studion Soft Industries, Ltd., a plug-in for Photoshop®. In this manner, each color channel can be adjusted as desired.

For example, using the cyan example above, the image assigned to the cyan channel is filtered, removing any color component other than cyan. The resulting image, which now

contains only the cyan component of the image, can then be saved as the "cyan color separation". These steps are then repeated for the remaining five colors resulting in six distinct files each representing a single color component. Therefore, as described, this step enables the original business card image to be separated, pre-press, into six individual colors, allowing designers to see and manipulate the design and six-channel output prior to printing.

Optionally, the business card image can be created or scanned directly into Photoshop®, after choosing the desired color space, thus eliminating the added steps in Illustrator®. The business card image can be sized for the correct dimensions, as well as for resolution. The color channels are easily separated and can be printed directly from the application if so desired.

The present invention can be used with any one of a number of image separation methods, *i.e.*, Hexachrome® 6-color system, that support either or both conventional halftone and stochastic screening, as well as gray-scale dithering. Stochastic screening involves imaging dots on film using special randomizing software, which uses mathematical expressions to statistically evaluate and randomly distribute pixels under a fixed set of parameters. The dots are identical in size and shape but the spacing between dots varies. Stochastic screening eliminates the problem of moiré patterns, screen rulings, and angles, and thus can lead to a significant improvement in image quality. Stochastic screening is also called frequency modulated ("FM") screening, in which the ink density is controlled by varying the number of dots (dark areas receive more dots while light areas have fewer dots). Conventional "halftone" screening or amplitude-modulated ("AM") screening, means simply increasing or decreasing the size (amplitude) of each dot while keeping the line spacing (screen ruling) equal. The most preferred method employs the Spectrum Shading Process® developed by Acushnet Company that is described in U.S. Patent No. 5,778,793, which is incorporated in its entirety by reference herein.

After separating the business card image into individual images and further separating each image into individual color channels in the color space, each color channel or layer can be flattened (relative to a normalized intensity zero point) and saved as a grayscale image. The grayscale image can be converted to a bitmap image using diffusion dithering. Preferably, the diffusion dithering is set at about 600 dpi. Finally, the image is saved as a final production copy.

Any type of ink may be used to print the image of the business card onto the packaging of the present invention. There are numerous types of inks available within the printing industry. These include, but are not limited to, waterless inks, solvent evaporating inks, oxidation curing

inks, reactive (catalyst curing or dual-component) inks, baking inks, UV curable inks, sublimation inks, and ceramic and glass inks.

Solvent-based inks are predominant in the pad-printing industry, as they dry very rapidly through solvent evaporation alone. They are very versatile inks, as they are available in both gloss and matte finishes and perform very well with many thermoplastic substrates.

It is possible to use 1-component inks because their long shelf life can make them easier to work with and more economical. Some 1-component inks are highly resistant to abrasion and solvents. Curing can take place physically or by oxidation.

Dual-component inks are also used extensively in the printing industry and contain resins capable of polymerization. These inks cure very rapidly, especially when heated and are generally good for printing on substrates such as metals, some plastics, and glass, and have very good chemical and abrasion resistance. With 2-component inks, curing typically takes place over about a 5-day period at a temperature of about 20°C, or over about a 10 minute period at a temperature of about 100°C.

Ceramic and gas (thermo) diffusion inks are also used in the printing industry. These inks are solid at room temperature and must be heated to a temperature greater than about 80°C.

Ultraviolet inks can also be used in the present invention. UV inks are typically cured by means of UV light having wavelengths of from about 180 nm to 380 nm. The advantages of using a UV ink are that they are fast and cure thoroughly, they are easy to use and are not affected by small changes in ambient conditions, they retain constant viscosity (*i.e.*, they do not dry up quickly), and they use smaller amounts of combustible organic solvent, such that little or no solvent fumes escape into the working environment and are, therefore, environmentally safer. Small amounts of solvent may be added to the UV inks for certain application to enable the ink to transfer in a conventional manner.

The inks may optionally contain additives such as binders, reactive prepolymers, thinners, low-viscosity mono and poly-functional monomers, photoinitiators to stimulate polymerization, stabilizing additives, flow control agents, wetting agents, pigments, extenders, or combinations thereof.

The thickness of the ink transferred to the surface of the packaging can be any thickness sufficient to provide a clear image of the business card (and logo or indicia, if any) and can vary with the ink type and color. The thickness of the ink film is also influenced by the viscosity of



the ink, and environmental factors, such as temperature, humidity, and so on. This thickness can be between about 2  $\mu\text{m}$  and 50  $\mu\text{m}$ , preferably from about 4  $\mu\text{m}$  to 20  $\mu\text{m}$ .

The business card (and logo or indicia, if any) may be printed over or under a clearcoat, such as U-Coat® offered by Odyssey Digital Printing of Tulsa, OK. The clearcoat, if present, may or may not be UV cured. Other finishing options include, but are not limited to, hot and cold laminates, including UV resistant, dry erase, and non-skid laminates. Laminates, if present, can have any thickness, but are preferably about 1 mil to about 10 mils thick, and can have any finish, such as gloss, luster, matte, or textured.

Odyssey's new AquaSEAL Liquid Laminator is the newest technology in low cost lamination. The AquaSEAL Liquid Laminator applies a smooth liquid laminate coating up to 1.2 mils thick to a wide range of flexible materials up to 60" wide, for applications that include billboards, vehicle and building signage, promotions, POP, trade show, and fleet graphics

Further, individual "spot" colors and/or metallic colors can be included on the business card image as well. If necessary or desired, once printed, the packaging can optionally be removed to a dry room, maintained at an elevated temperature, for a predetermined time to cure the ink.

The term "about," as used herein in connection with one or more numbers or numerical ranges, should be understood to refer to all such numbers, including all numbers in a range.

The invention described and claimed herein is not to be limited in scope by the specific embodiments herein disclosed, since these embodiments are intended as illustrations of several aspects of the invention. Any equivalent embodiments are intended to be within the scope of this invention. Indeed, various modifications of the invention in addition to those shown and described herein will become apparent to those skilled in the art from the foregoing description. Such modifications are also intended to fall within the scope of the appended claims.